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# UARC signals creative approach to NASA research, business

NASA and one of the nation's largest and most prestigious university systems have launched a bold new research collaboration, signaling a new way of doing business at the space agency – and throughout the country.

During a news conference held Sept. 22 in the NASA Ames Conference Center (formerly the MTCC), NASA and University of California officials announced they have signed a 10-year contract valued at more than $330 million, a first-of-its-kind for NASA, to establish a University Affiliated Research Center (UARC).

The University of California at Santa Cruz (UCSC) will manage the UARC as the lead campus on the project. Officials say the UARC will provide a unique combination of research and educational capabilities to meet NASA's mission requirements and to develop future human resources in technology and science.

"The UARC moves NASA and university collaborations in a whole new direction," said G. Scott Hubbard, Ames center director. "Typically, universities focus on fundamental research. With the new UARC, we are breaking down traditional institutional barriers to collaborate on mission-driven research that is on NASA's critical path," he added.

"This collaboration brings together ideal partners for innovation," commented M.R.C. Greenwood, UC Santa Cruz chancellor. "This is a singular opportunity to advance important and potentially world-changing research," she added.

"Our campus' keen interest in this project is supported by recognized research achievements and previous success in multidisciplinary and collaborative projects, such as the national Center for Adaptive Optics," Greenwood continued. "The distinguished team of UC participants and our partners at San José State and the Foothill DeAnza Community College District are eager to commence work with our NASA colleagues," she said.


NASA photo by Dominic Hart

Congresswoman Zoe Lofgren (far left) addresses the audience at the recent UARC rollout while Ames Center Director G. Scott Hubbard (second from left), UCSC Chancelor M.R.C. Greenwood (second from right) and U.C. Provost and Senior Vice President for Academic Affairs C. Judson King (far right) look on.

The creation of the UARC will surely prove to be a very significant event in NASA history. The NASA-UCSC UARC is the first significant new partnership of a federal research laboratory with a major university system in more than 45 years. Nothing like this has occurred since the birth of the Los Alamos National Lab. and NASA's adoption of the Jet Propulsion Lab.

California Congresswoman Zoe Lofgren and staff members from the offices of congressional representatives Anna Eshoo, Mike Honda and Sam Farr attended the mid-morning news conference that was followed by a festive recognition luncheon in the conference center's grand ballroom. State Senator Bruce McPherson and C. Judson King, provost and senior vice president, academic affairs, University of California, also were in attendance, as were representatives from the cities of Mountain View and Sunnyvale.

The announcement received considerable coverage in local news media, including KCBS news radio, the San Francisco Chronicle, San José Mercury News, Oakland Tribune, Space Daily, Mountain View Voice, Tri-Valley Herald, Silicon Valley Business Journal, Federal Computer Week, The Scientist, Palo Alto Daily News and Washington Fax.

NASA officials said the new UARC will provide Ames with additional research capabilities to fulfill NASA's mission requirements. The UARC's educational mission will enable students and university researchers to work side by side with Ames researchers on mission-critical problems to benefit the agency and the nation. Overall, the UARC will provide long-term continuity of top-tier research talent focused on NASA's growing multidisciplinary mission needs.

The close collaboration with an established university system will enable the UARC to offer career opportunities to attract and retain the best researchers. The UARC contract will substantially expand university participation from fundamental research under grants and cooperative agreements, to mission-driven research under task order contracts.

The total estimated cost-plus-award fee for the base period is $119 million; the total estimated cost-plus award fee for option period one is $82 million; the total estimated cost-plus-award fee for option period two is $132 million.

The 10-year period of performance consists of a five-year base period followed by two-year and three-year options. The university began phase-in operations in September 2003, with full contract responsibility starting December 2003 and continuing through August 2013.

BY MICHAEL MEWHINNEY

# Ames students make West Nile Virus risk map for Monterey

A map showing the potential risk of West Nile virus being carried by mosquitoes in Monterey County is the product of four students who worked this summer at NASA Ames.

The students made ground surveys of mosquito habitats and matched their data with satellite pictures and data to make a countywide map that officials are using to help deploy mosquito abatement teams and equipment. The college and high school students used a computer program that creates maps with special color-coding to identify objects and areas on the ground as varied as specific crops, animal habitats and urban areas. This type of computer program helps scientists analyze and manage large numbers of digital images and other information.

"The students for the first time have produced a risk map for the human population in Monterey County, which includes the general area of Carmel, Calif.," said Jay Skiles, an Ames research scientist and mentor for the student team. "The map shows the location of at-risk humans who are 55 and older and their proximity to West Nile virus-carrying mosquito habitat."

The virus causes a version of the sometimes-fatal disease encephalitis that results in inflammation of the brain and spinal cord. The student study and map enable Monterey County officials to more effectively direct their mosquito abatement program to areas where the West Nile virus would most likely affect human beings, according to Skiles. The students made a presentation about their study to the county board of supervisors in September. In addition, the students made presentations to the Western Governors' Association in September in Montana and will later present to the National Mosquito and Vector Control Conference in Georgia.

Students sampled standing water to gather evidence of mosquitoes that can carry the West Nile virus. The team correlated ground observations with satellite imagery to identify countywide mosquito habitat.

"We did field work to identify vegetation that is associated with mosquito habitat," said Emily Clary, a team member who is a student pursuing a master of science degree in geography at the University of New Mexico, Albuquerque, N.M.

Specific combinations of variously colored light frequencies and other energy reflected by the surface of the Earth serve as spectral 'fingerprints' that the students used to zero in on where mosquitoes breed. The satellite pictures and data enable scientists to observe and analyze wide areas that otherwise could not be accurately surveyed without the help of thousands of volunteers on the ground.

The virus was first documented in North America in 1999, according to student Elizabeth Ballif of Utah State University. "Last year alone over 4,000 human cases were reported, resulting in nearly 300 deaths," Ballif said.

"What's really important is that students recommended additional mosquito surveillance in places where the county isn't doing surveillance," said Cynthia Schmidt, 'Develop' program coordinator at Ames. 'Develop,' a student applications and workforce development program, focuses on the community benefits of Earth science.

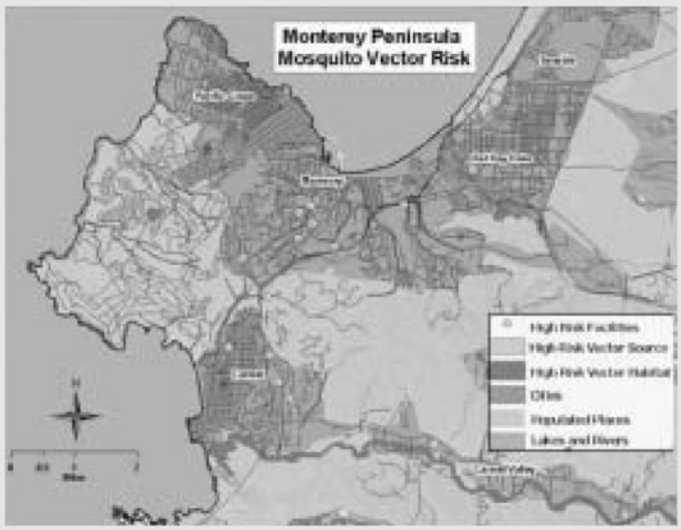
"The county will be forewarned of the presence of the virus before it hits populated areas," Schmidt added.

The Western Governors' Association in Denver announced in May the selection of students from western universities who received training and internships in applied Earth science, including remote sensing. Remote sensing is the use of satellite and aerial images to monitor and investigate environmental, health, agricultural and other issues.

"This summer, the students learned skills such as remote sensing, image interpretation and geographic information system techniques," Skiles said.

"It seemed like what we were doing is actually putting out a useful product," said 16-year-old Kevin Hsu, a student at Gunn High School in Palo Alto. "A lot of the NASA scientists were very helpful and willing to share. It was quite exciting to work with people at levels from high school up to graduate level," Hsu added. He is the only high school student on the West Nile virus team.

The other team members, their schools and the degrees they are pursuing are: Ballif, of Utah State University, bachelor of science, geography; and Alex Hogel, of the University of Utah, bachelor of science, geography. The university students took part in the 'Develop' program. Student teams research state, tribal and local problems and create 3-D computerized visualizations to help government and industry better understand how NASA technology can help with issues of community concern.




A West Nile virus risk map showing the potential risk of West Nile virus being carried by mosquitoes in Monterey County is the product of four students who worked this summer at NASA Ames as part of the 'Develop' program. The students made ground surveys of mosquito habitats and matched their data with satellite pictures and data to make a countywide map that officials are using to help deploy mosquito-abatement teams and equipment.

Other students working in the 'Develop' program at NASA Ames are conducting studies of the Pyramid Lake Paiute tribe reservation in Nevada. The primary objectives of this project are to use remote sensing and ground-based methods to map and monitor invasive and noxious plant species that are rapidly encroaching upon the northern Nevada territory. The project also includes organizing new and existing data to create a database of information about wildfire fuel on the reservation.

The Applications Division of NASA's Earth Science Enterprise funds the program. The Western Governors' Association is an independent, nonprofit organization representing the governors of 18 states, American Samoa, Guam and the Northern Mariana Islands.

Images of the Monterey County West Nile virus risk map and other publication-size images are available on the Internet at: http://amesnews.arc.nasa.gov/releases/2003/03images/westnile/westnile.htm.

BY JOHN BLUCK